# Policies to increase workers skills

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## 1. Initial education and labour market performance

*Education is an important determinant of individual labour market performance …*

1. In OECD economies, people with low qualifications face gloomier employment prospects or, in countries where they can price themselves into jobs, a higher risk of being persistently in low pay and often in poverty. Employment rates of those with tertiary education are up to three times greater than those of workers with less than upper secondary education (Chart 1). In addition, the employment gap between high- and low-educated groups seems to be on the rise in many countries (OECD, 2003a, chapter 1).

**Chart 1. Employment rates by educational attainment, 2002**

*… and has a sizable impact on aggregate employment.*

2. This impressive gap in labour market performance can partially be explained by the fact that employers tend to use education to screen job applicants. High-educated individuals may therefore crowd-out their low-educated counterparts by competing for low-skilled positions, especially in periods of depressed labour demand. However, there is only limited evidence of crowding-out in the microeconometric literature. Conversely, there is a strong cross-country correlation between average years of education and aggregate employment rates (Chart 2). In fact, recent OECD estimates show that one additional year of average education can increase employment and labour force participation rates by up to 1.7 percentage points (OECD 2004, chapter 4).

**Chart 2. Employment rates and average years of schooling, 2000**

3. The strong correlation between the average educational attainment of a country and the performance of its labour market is likely to be due to three main factors:

*Education is known to have a strong impact on productivity.*

- According to OECD estimates, increasing average education by one extra year would raise aggregate productivity by about 6% (OECD, 2003b). In turn, the productivity gains can be

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shared by workers (through greater wages) and firms (through greater profits), thereby raising both the incentive to participate in the labour market and labour demand.

*The growth of educational attainment can accommodate rising demand for skills.*

- Unskilled workers have been experiencing an adverse demand shift in the past thirty years, compressing their labour market earnings (and therefore their incentive to participate) and/or worsening their unemployment prospects, to the extent that the wage structure cannot fully adapt. By simply allowing the supply of human capital to accommodate demand shifts, education can have a positive impact on aggregate employment rates.

*Education is crucial for competitiveness in high-tech sectors.*

- Competition in high-tech sectors is fierce. The quality of human resources of one country is crucial to maintain its market share in these sectors and attract FDI. Recent OECD estimates indeed show that one additional year of average educational attainment in the population would increase total stock of inward FDI by 1.9% (Nicoletti et al., 2003). In turn, inward FDI might result in strong employment growth, as the Irish experience suggests.

## 2. Adult learning and labour market performance

*But initial education is increasingly insufficient to carry a person through his/her working life*

4. The approach to human resource development based on provision of formal education and vocational training preceding entry to the labour market is increasingly insufficient for at least two reasons. First, technological and structural changes render jobs and skills obsolete at such a rate that the slow renewal of the labour force through the entry of young qualified workers might not suffice to satisfy the demand for new qualifications, thereby increasing the risk of skill shortages that, in a global economy, may depress employment. Second, as skills become outdated more quickly than workers retire from the labour force, there is a strong risk of older workers losing their current jobs, while lacking the competencies to move into new jobs. This might rapidly become a major problem for OECD economies since, due to population ageing and the effect of policies aimed at prolonging working life, the bulk of the labour force in 10-15 years from now will be composed by individuals who will have completed their initial schooling many years before.

5. In addition, although learning begets learning, and the productivity of adult training is likely to increase with the quantity and quality of initial education, individuals who have entered their working life without qualifications might sometimes succeed in reducing their handicap through later investment in competence development.

*Adult education and training make individual footholds in employment more secure …*

6. Workers maintaining and upgrading their competences by continually undertaking training during their working life, tends to be in a better position in the labour market, with not only higher wage growth but also more secure employment prospects (OECD 2004, chapter 4). Although there are important cross-country differences, OECD estimates show that, on average, a 10% increase in the time spent by an adult individual on education or training is estimated to be associated with *a)* an increase in the probability

of being active of about 0.3 percentage points, and *b)* a fall in the probability of being unemployed of almost 0.2 percentage points (Chart 3).

**Chart 3. Training increases the probability of being active and reduces the risk of unemployment**

*… by facilitating the transition from job to job, particularly for displaced workers.*

7. Incentives to skill formation are particularly important within a strategy of global reform aiming at making the labour market more responsive to change. Indeed, a recent OECD study based on data from European countries show that workers who have received training in one job move easily to more secure and better paid jobs (OECD 2004, chapter 4). In particular, training received during fixed-term contracts has a crucial role in making temporary jobs a stepping stone towards open-ended contracts. Similarly, workers who receive training during their career are in better position in the event of lay-off, since they are more successful in searching for a new job. For instance, for a worker aged 35 years or more, the probability of finding a new job within two years after lay-off is estimated to be 8 percentage points greater if he/she took some training in the year before job loss.[1]

## 3. Is the investment in adult education and training too low?

*Firms are the main investors in human capital formation of adults …*

8. Most of the investment in competence formation of adults consists in vocational or informal training, while recurrent education is not widespread. Indeed, while 26% of adults (excluding full-time students and retirees) of OECD countries participate in some vocational training course every year, only 4% of them enrol in curricula leading to a formal education diploma (Chart 4).[2]

**Chart 4. Formal education accounts only for a small part of adult learning**

9. Individuals, however, bear only a small share of the cost of training. Available evidence point to the fact that firms are the main investor in human capital formation of adults. Chart 5 shows that in most OECD countries, firms fully pay for more than 70% of the vocational training courses of their employees.[3] Yet, most of this training appears to concern competences that can be successfully used by the recipient in other jobs and firms. Moreover, the share of formal education courses — arguably imparting general competences — that are paid by firms is also large (about one third; OECD, 2003a, chapter 5).

**Chart 5. Most training is entirely paid by employers**

*…because several constraints limit the investment of individuals…*

10. Why do individuals pay such a small fraction of the costs of their training? After all, it can be argued that, while any gain for the firm is lost upon separation, individuals can benefit from training throughout their working life, to the extent that the competences imparted by training are sufficiently general and obsolescence is not too large. One reason is that *labour market imperfections* provide the employer with some degree of market power over their trained personnel so that they can afford to pay trained workers less than their post-training productivity and still retain them. To the extent that benefits from training are shared, workers have no incentive to pay for the totality of its costs.

11. Labour market imperfections alone, however, do not suffice to explain why workers often do not pay at all for training courses that impart relatively general competences. *Capital* and *training market imperfections* contribute to explaining this apparent puzzle. Training might not be fully contractible because its type and quality are unlikely to be specifiable in a contract in such a way to be verifiable by third parties such as tribunals. Consequently, individuals might give up training opportunities because they are unable to gauge the quality of the services offered by different providers. By the same token, they might therefore refuse to share training costs with their employer, when the latter is the training provider or acts as a broker of training services. In addition, benefits from training are uncertain and hard to assess for a single individual, for whom training represents one indivisible risky investment that cannot be diversified. Finally, the fact that human capital cannot be used as collateral makes it difficult for individuals to finance training through borrowing.

*… but labour market imperfections might prevent them from investing enough*

12. Labour market imperfections induce firms to compensate for individual under-investment, at least partially. In fact, employers have an incentive to invest in the human capital of their employees because they benefit from it in the form of higher profits — that is, because pay scales do not follow closely the increase in productivity brought about by training. However, employees can always accept better job offers and quit. Therefore, when employees' competences are transferable, future employers will appropriate part of the benefits of training without having contributed to its costs — a phenomenon that is often called "poaching". To the extent that current employers do not take into account the benefits from training that will accrue to future employers, they will tend to invest in training less than the amount that is socially desirable (see OECD, 2003a, chapter 5).[4]

*Do market imperfections induce marked underinvestment in training?*

13. How pervasive are the effects of these imperfections on training outcomes? Available evidence is mainly indirect and does not allow a conclusive answer. Some evidence on the potential effect of labour market imperfections has been obtained by looking at the relationship between minimum wages and training. In fact, minimum wages compress the lower tail of the wage distribution and can therefore be expected to reduce overall training investments albeit increasing the share of them that is paid by firms. For instance, Neumark and Wascher (2001) estimate that introducing California's minimum wage in US states applying the federal minimum in 1991 — that is an increase of about 10% — would have implied a reduction in the amount of training of about 17%. Several other studies on more recent data, however, did not find the same relationship in the United States, and even found a positive impact of the introduction of the National Minimum Wage in the United Kingdom in 1999. Findings based on other measures of labour market imperfections seem to confirm a positive relationship (Brunello and De Paola, 2004). For instance, many studies seem to suggest that a 10% increase in wage compression might increase training by up to 20%.

14. Does a positive relationship between the degree of labour market imperfections and training imply that these imperfections have little bearing for training outcomes? If this were true, no relationship whatsoever should be observed between labour market imperfections and training. By contrast, one possible interpretation of the evidence is that training and capital market imperfections constrain the capacity of individual employees to invest in training more than what they do for employers. In such a case, in fact, individual investments are anyway low. Conversely, the greater the labour market imperfections, the greater the share of training benefits employers can appropriate, and therefore the greater the amount of training they will be ready to pay for as well as the total volume of training provided (Stevens, 1999). If this interpretation is valid — thing that remains to be demonstrated unambiguously[5] —

enhancing flexibility in the labour market without complementary reforms in other markets might have adverse effect on training. To the extent that comprehensive reforms in other markets are not feasible or cannot be sufficiently effective, specific training policies aiming at increasing firms' investments in training (to compensate for the poaching externality) can be justified (see below).

## 4. Training inequalities

*Disadvantaged groups would benefit from further training …*

15. Although recent OECD analysis (OECD, 2004, chapter 4) points out that the estimated impact of training on wage growth tend to be larger in the case of relatively young and well educated employees, available evidence suggest a much more homogeneous impact on individual employment prospects (Chart 6). Once foregone income due to unemployment spells is taken into account, it turns out that training is likely to have a greater impact on individual earnings.

**Chart 6. Training has a positive effect on different types of workers**

16. Are the gains enjoyed by individuals upgrading their skills offset by the losses experienced by those who do not participate in training? — *i.e.* are *displacement effects* large? Although evidence on this question is scant, a recent OECD study (OECD, 2004, chapter 4) finds no evidence that the share of recently trained workers within a given labour market group (for instance defined in terms of age and education) significantly displace non-trained workers in the same group. In other words, marginally increasing participation rates for a given targeted group can be expected to improve aggregate labour market performance of the group as a whole.[6]

*… but opportunities are unequal across workers*

17. Empirical evidence show, however, that those groups that receive less training have already lower earnings or employment security. For instance, gender differences in education and training are of the order of 15% on average (see Chart 7) — that is a figure comparable to the average gender wage gap (see OECD, 2002b, chapter 2). Even more striking, older workers and individuals with less than upper secondary education receive less than 50% of the volume of training received by an average individual. Among employed workers, the same occurs for workers in low-skilled occupations, in small firms or self-employed, although part of these gaps are probably due to individuals with greater training potentials sorting into high-skilled occupations and large firms. As a result, current training patterns risk to increase labour market inequality between different worker groups.

**Chart 7. Training inequalities are significant**

18. Do firms discriminate among workers when choosing whom to train? Or, are these differences due to lack of individual demand? OECD analysis (OECD, 2003a, chapter 5) shows that employers are less likely to include women, immigrants, involuntary part-time and temporary workers, workers in low-skilled occupations and/or with little basic competences, when selecting which employees to train. The primary cause of existing training inequalities is indeed the discriminating behaviour of firms, which might be because they expect lower returns from investing in the human capital of these groups (due for instance to greater direct training costs, smaller productivity growth induced by training and/or specific constraints affecting certain groups).[7] The same applies to employees of small firms and/or in low-tech sectors. In the latter case, however, lack of employer support is not due to selection by firms but rather to the fact that larger internal labour markets as well as rapid technological change present greater opportunities for large

high-tech firms to reap the benefits from training — *e.g.* through internal promotion or re-assignment and upskilling. Large firms may also have lower unit costs of training and greater access to credit and information. Conversely, the distribution of training by age seems to be the most important exception to this pattern, insofar as it appears to be essentially the result of lack of demand from older workers, which may be due to shorter pay-back periods and lack of adequate offer by training providers.[8]

## 5. The possible approaches to policy action

*Structural reforms are likely to reduce imperfections in the labour market …*

19. Insofar as market imperfections are responsible for training outcomes, and that these imperfections are due to institutions and policies, the first-best approach would be to overcome them through structural reforms. Within this context, one can expect that product and labour market policy reforms envisaged by the OECD Jobs Strategy, by reducing the degree of imperfection of these markets, might allow training investments to approach socially optimal levels. For instance, reforms concerning barriers to entrepreneurship, employment protection legislation, minimum wages and opt-out clauses in collective bargaining, by removing barriers to resource reallocation, reducing mark-ups, and making pay-scales reflect productivity more closely, are likely to reduce search costs for trained workers and increase the share of training benefits that can be appropriated by workers, thereby increasing their incentive to pay.

*…but this might not suffice to improve training outcomes*

20. In the presence of capital or training market imperfections, however, employees might not find themselves in the position to be able to afford and/or accept to increase their share of training financing. For instance, credit constraints may create a barrier to training of low-educated (low-income/low-wealth) workers or these workers may find it difficult to negotiate with their employers about the content and quality of training programmes. Consequently, to the extent that more flexible labour markets — enhanced by structural reforms — decrease the share of training benefits that is appropriated by employers and increase the share potentially reaped by workers, structural reforms might even result in the level of training investment falling further below socially desirable outcomes. Complementary reforms in the capital and training market might help reducing this problem. However, it is still unclear whether structural reforms can fully eliminate imperfections in these markets (see below).

21. Additionally, some of the labour market imperfections that might affect training outcomes might also not be thoroughly overcome by structural reforms. For instance, training might impart specific combinations of skills that are only imperfectly transferable in the sense that only few firms can effectively make use of them (Lazear, 2003). If this is the case, although training in these skills increases potential job opportunities for the worker, finding them may require a long and costly search process. In turn, this might provide greater bargaining power to the current employer, who can appropriate part of the benefits of training by paying the trained employee less than his/her productivity, at least in the short term.

*Certain contractual arrangements for cost-sharing can approach the first-best …*

22. The risk of poaching is the main reason why, when firms pay for a large part of training cost, human capital investment might fall short of optimal outcomes. By defining codes of conduct that discourage poaching, employer associations can establish coordination mechanisms that help reducing the importance of this problem (Hall and Soskice, 2001, Wakita, 1998, Blinder and Krueger, 1996). However, these codes of conduct might *de facto* facilitate cartels, thereby hampering resource reallocation and

product market competition.[9] An alternative — and perhaps more efficient — way of overcoming the poaching problem is through contractual arrangements that provide firms with temporary protection against poaching — allowing them to cash-in their share of benefits immediately after the training spell while letting the individual free to appropriate the remainder in the long-run. Pay-back clauses and apprentice contracts fall within this category.

23. Statutory or contractual pay-back clauses specify that a worker leaving the firm within a specified period after an education or training spell has to agree to reimburse at least part of the training costs incurred by the employer. During the period covered by the clause, the employer can contain wage growth after training to recoup the cost of training without increasing the risk of quits. But efficient turnover is not undermined by this type of clause. Indeed, if the trained employee finds a job in which he/she is more productive, he/she (or his/her prospective employer) can always reimburse the cost of training and appropriate the extra benefits. Similarly, in apprentice contracts, apprentices are paid less than their productivity during most of the period covered by the contract, but a recognised qualification is delivered at the end, with the apprentice receiving a substantial wage increase if he/she stays with the same firm. Like contracts involving pay-back clauses, employers can recoup the cost of training by paying workers less than their marginal product in the final stage of the apprenticeship. But contrary to pay-back clauses workers can quit before the end of the contract without penalty except that, if they do, they do not receive the final certification. For this reason, workers have an interest to stay at least until the end of the apprenticeship, but firms have an interest to provide good-quality training to minimise quits.

*… but only under specific circumstances*

24. The application of pay-back clauses in training contracts remain however limited, in practice. While pay-back clauses are frequent in the case of the expenditures incurred by firms to help new hires move to the region in which their new workplace is located,[10] this is less so in the case of training costs. For instance, according to a recent study only 15% of German firms have recently used pay-back clauses for specific training purposes (OECD, 2003a, chapter 5). One reason might be that standard pay-back clauses provide the worker with an incentive to induce the employer to lay them off, insofar as they apply only in the case of voluntary quits (Carmichael, 1983). Perhaps more relevant, another reason is that employees might be reluctant to sign contracts with pay-back clauses if the training involved does not lead to a clearly recognised qualification, since this would imply trading-off bargaining power for a service of uncertain quality. Formal education courses are therefore particularly suited to pay-back clauses because related expenditures, program content and quality as well as the value of being trained for the employee (*i.e.* the market price for the skills acquired through education) can be easily assessed. But, not all types of training have these characteristics.

25. Beyond helping defining quality standards and improving information diffusion and guidance (see below), public policy can improve the diffusion of these contracts by developing a legal framework for their application and setting incentives for their use. For instance, in Luxembourg, pay-back clauses apply also in the case of lay-offs for serious fault by the employee. In Germany contractual pay-back clauses are enforced by courts only if the quitting employee is estimated to be able to benefit from the content of training in the new job. The latter arrangement can be expected to reassure the worker that he/she will be liable to pay only when training has effectively enlarged his/her opportunity set, thereby increasing his/her incentive to accept such a clause.[11] Still, enforcement of these provisions essentially depends on court judgements that might be partially unpredictable.

26. Governments can improve the efficiency of apprentice contracts by regulating their duration. In fact, a fixed duration prevents firms from poaching other firms' pool of apprentices in the final stage of their contract.[12] Insofar as apprenticeships essentially concern people entering a new occupation who

receive instruction in the specific skills needed to start their career, governments can also allow a more efficient diffusion of them by removing age barriers due to age differences in government subsidies — that might be unjustified to the extent that prime-age and older workers tend to restart new careers increasingly often. For instance, in Australia, since all age restrictions were removed from apprenticeships and traineeships in 1992, individuals aged 25 years and over have accounted for the majority of new apprenticeships, but this strong growth has not come at the expense of younger apprentices whose number also rose (OECD, 2003c). However, apprentice contracts can be successful only when they lead to a clearly recognised qualification, which again drastically limit their scope.

27. In summary, contracts with pay-back clauses and apprenticeships can induce agents to approach first-best outcomes, under specific circumstances. Specific policies can also improve their effectiveness. However, to the extent that these policies cannot thoroughly overcome problems of training contractibility and other imperfections in the training market, these contracts are unlikely to improve training outcomes under all possible circumstances.

*A case for second-best policies can be made …*

28. In the light of these considerations, a case for second-best training policies — that is, aiming at inducing optimal investment levels *given* existing labour market imperfections — could be made, provided that it is possible to design policies that lead to additional and productive training at reasonable cost. Furthermore, second-best strategies allow considering training policy as an additional instrument to reduce inequalities in the labour market. This might explain why there is a lot of attention of policy-makers for lifelong learning policies despite the lack of conclusive evidence on market failures. Yet, the provisio on cost-effectiveness has often received little attention, and the relative efficiency of training policies, with respect to other potential instruments, remains largely to be evaluated.

*…but evaluation mechanisms must be built into the policy design*

29. Well-designed policies should be based on a careful ex-ante quantitative assessment of social benefits and costs. But this assessment exercise can be done only on the basis of rigorous ex-post analysis of existing policies and there are still too few empirical evaluations of those schemes that have been already implemented in different countries. In addition, most of those available are limited to descriptive statistics and do not build up counterfactuals against which a rigorous assessment could be made. Well-designed policies must therefore include evaluation mechanisms in their design to ensure timely corrections of policy mistakes. For this reason, in many countries there is an increasing tendency to try policy innovations as pilot programs first (possibly with some variation in the design of simultaneous pilots), in order to proceed to their evaluation before mass implementation. Albeit a step in the right direction, using only pilots to evaluate a programme might be insufficient, however, because there might be scale effects that can be difficult to evaluate through small-scale experiments.[13]

*Heterogeneous training needs are more easily addressed through the demand side*

30. To the extent that, in contrast to children in initial education, learning objectives of individual adults are ever-changing and very heterogeneous, such needs can best be met through a more differentiated arrangement of providers and courses than the delivery mode characterising initial education. For this reason, second-best strategies to increase human capital accumulation of adults have shifted from public provision and direct subsidisation of external private providers of training services to strategies focused on increasing individual and corporate demand, leaving supply more or less free to adapt to increasing demand.

## 6. Government-supported co-financing schemes

*Governments can provide financial support to firms' and individuals' investments …*

31. Most demand-side policies consist in government-supported co-financing schemes — that is, intended to increase incentives for employers and/or individuals to invest in competence formation through a partial contribution to training costs.

32. Insofar as current employers might not be able to internalise benefits from training that will accrue to future employers, *tax arrangements* or *grant schemes* for enterprises have been used by many countries to increase aggregate investment. These schemes aim at raising employers' investment towards the socially optimal level by modifying their private cost of training and, with respect to this objective, might be effective under certain circumstances (see below). By contrast, it might be very difficult to target groups that have less frequent opportunities to receive employer-sponsored training through incentives for firms. The reason is that there is a strong risk to induce inefficient substitution among groups to the extent that, in the absence of the policy measure, the firm would be almost indifferent between training employees belonging to the targeted group or to a subset of non-targeted groups. For example, in one of the few rigorous evaluation studies on training policies, Leuven and Oosterbeek (2004) show that tax deductions available to firms training workers aged 40 years or older — introduced in the Netherlands in 1998 and recently abolished — induced significant substitution between workers above and immediately below the age threshold, making the overall efficiency of the scheme questionable.

33. When training policy is intended to reduce inequalities in the access to training, the only co-financing schemes that have some chance of success are those that focus directly on individuals (such as *loan* and *individual subsidy schemes*), by relaxing borrowing constraints and increasing expected rates of return. However, their effectiveness depends on information that workers often do not have. In addition, portability of skills must be assured, particularly in the case of training not delivering formal diplomas. As a consequence, financial incentives must be accompanied by adequate framework conditions (see below).

*… although any efficient financial incentive must not cover total costs but be a matched contribution*

34. What counts for individual or employer's decisions to invest in training is the difference between marginal expected benefits and marginal training costs. Hence, despite the lack of rigorous ex-post evaluations, it is still possible to establish two necessary (but not sufficient) conditions for a co-financing policy to be efficient:

- The subsidy component of a policy package must seek to *compensate only the gap* between marginal costs and marginal private benefits that may arise at the socially desirable investment level, leaving to employers and/or employees the responsibility of financing the rest. Therefore, whatever its objective, a co-financing policy can approach efficiency only if its implicit or explicit subsidy does not cover total costs but is a matched contribution.

- Co-financing policies must reduce *marginal* private training costs *for every subsidy recipient*. A recipient obtaining a lump subsidy, which does not change his/her marginal costs, will not modify his/her investment decisions. In such a case, therefore, the subsidy will at best pay for training that would have been done anyway.

### *6.1 Financial incentives for firms*

35. Financial incentive schemes for firms usually take two forms: grants or tax deductions (or their combination, such as "train-or-pay" schemes). In addition, these schemes may (or may not) be financed through specific training levies.

36. There is little *a priori* ground on which tax deductions can be preferred to grant schemes or vice versa, provided that they are designed according to the principles outlined above. For example, in Austria, firms can deduct 120% of the cost of training from turnover when determining taxable income. This implies reducing marginal costs by 20%, the remaining share being fully paid by firms. Similarly, in no EU country, grants awarded by matching national resources with funds from the European Social Fund finance more than 50% of training costs, except in special cases (see OECD, 2003a, 2005, for other examples). Tax-based schemes have the advantage of building on existing institutional arrangements for taxation, allowing them to be applied with limited implementation costs. Conversely, grants awarded through a case-by-case analysis of training plans have, in theory, greater probability of avoiding financing training that would be undertaken anyway in the absence of the subsidy. For the same reason, targeting problems are less important in the case of grants. However, in practice, exploiting the potential of grants requires information and competences that are often not sufficiently available within national administrations. In addition, their administrative costs are high and, often, their lack of transparency makes them open to abuses.

37. Another advantage of grant schemes with respect to tax deductions is that grants can be more easily financed through a specific levy. Indeed, while grants can be awarded only until exhaustion of the resources contained in a specific fund, the use of a levy to finance tax deductions requires estimating the reduction in tax revenue that the deduction will imply.[14] This perhaps explains why tax deductions have been rarely financed through a specific levy, the only exception being the case of train-or-pay levy/grant schemes (adopted for instance in France and the Quebec province of Canada and often advocated in policy reports),[15] which require employers to spend up to a certain proportion of payroll on training or pay a levy. In practice, however, train-or-pay schemes do not fulfil the necessary conditions outlined above. This is because they combine three measures: i) a tax of a given percentage of payroll independent of training expenditures; ii) a 100% automatic subsidy of training expenditures up to that percentage of payroll; and iii) an additional grant funded by the resources collected through the levy and awarded through case-by-case analysis of training projects. By covering total costs up to a pre-determined ceiling, train-or-pay schemes do not provide a matched contribution to firms that would have spent less than the legal minimum in the absence of the scheme and, therefore, "overpay" any increase in training investment they induce. Conversely, firms that would have spent up to the legal minimum anyway enjoy a windfall, which does not increase their incentives to invest in training.[16]

38. In many cases, however, training generates considerable private returns; therefore, efficient policies must induce employers (and/or employees) to finance most of its costs. As a general rule, when a precise evaluation of social costs and benefits is difficult, it might preferable to focus on co-financing schemes with large leverage potential, which have greater scope to minimise costs for the public budget as well as the risk to finance training that would have been undertaken anyway. For instance, many institutional arrangements that allow mobilising substantial investment from employers can be implemented with limited public co-financing (examples includes apprenticeships, time accounts, company-based individual learning accounts, as well as training consortia pooling together resources from different enterprises; see OECD, 2003a, 2004, 2005; see also below).

### *6.2 Financial incentives for individuals*

39. As discussed above, to the extent that individuals do not sufficiently invest in training because of borrowing constraints, public authorities can put in place schemes — such as loan guarantees, subsidisation of interest payments and/or lending by public bodies with, possibly, income-contingent repayments — to address the reluctance of private financial institutions to make loans for education or training purposes. In principle, loans can be neutral for the public budget, thereby making easier to develop large-scale programmes. However, except when these schemes are intended to finance higher education of the youth and/or are combined to training leaves, they have proved to be of only limited appeal for adults, who tend to be more reluctant than younger persons to finance uncertain investments in human capital through loans — perhaps, due to existing debts (*e.g.* home mortgages), family responsibilities, or shorter payback periods in the case of older workers.

40. To the extent that loans prove to be ineffective, under-investment of individuals is due to training market imperfections that are difficult to address directly (see below) and/or equity considerations suggest promoting training investment for certain groups, a case for individual training subsidies can be made. As for financial incentives for firms, in the absence of rigorous evaluations, it is difficult to distinguish a priori between different types of schemes (e.g. vouchers, individual learning accounts, grants from specific funds, etc…). Yet, some judgement can be made on the basis of the principles outlined above: subsidy schemes are more likely to be efficient when they are matched contributions that reduce marginal costs of training for any subsidy recipient.[17] For instance, the US and Canadian individual learning accounts[18] typically imply a government subsidy smaller than 100% (often a 3 to 1 match, targeted on low-income/low-wealth households) of the amount saved by the individual for personal development purposes, including training (OECD, 2003a, chapter 5). Conversely, vouchers are less likely to be consistent with these principles,[19] although they might be justified when precisely targeted on disadvantaged groups (such as in the case of the Upper Austria's voucher scheme for older and low-qualified workers; OECD 2005).

## 7. The need to address further barriers to individual investments

*Policies to co-finance individuals can be wasteful without complementary reforms in the training market*

41. In many cases, barriers to individual investments are not limited to borrowing constraints. More often the main factor discouraging individuals from investing in human capital is the lack of transparency of the training market and the consequent uncertainty about returns to training. Policy packages including provisions to co-finance individual training needs that do not address training market imperfections might result in a substantial waste of public resources. Institutional arrangements can increase actual and perceived training benefits by: i) facilitating information diffusion and providing guidance to potential learners; ii) ensuring quality control on the services offered by training providers; and iii) fostering the portability of skills through the establishment of clear accreditation systems.

*Institutional arrangements can increase perceived marginal benefits …*

42. In many cases individuals have only imperfect information on the likely benefits from training, are unaware of the variety and quality of training services that are available to them and cannot gauge the uncertainty of the returns from the investment. Information and guidance systems are, therefore, an important piece for increased access to adult learning and for a better match between demands of individuals and supply by training providers. Their objective is to inform individuals and employers about learning opportunities, their practical aspects as well as available incentives. Almost all countries have set up electronic learning databases, making the information on training opportunities available to a large pool

of users. However, these databases do not fulfil the guidance function and are clearly insufficient for many individuals, especially low skilled adults. Personal support, available either in specific lifelong learning information and guidance service centres or in integrated centres, which provides together information and guidance services on various matters, can help them reach training opportunities that are adapted to their own needs. Taking into account that personal support is however costly. This suggests a two-tier approach with free access to basic existing information and fee-paying personal coaching, with public support in the case of difficult situations (see OECD, 2005, for examples).

43. Providing information and guidance, however, might not be enough: since barriers to entry of training providers must be relatively low to allow supply accommodating demand shifts without raising costs, a trade-off between prompt responsiveness to demand needs and guaranteeing quality of provision might emerge.[20] Therefore, in countries where the provision of adult learning is mainly private, there is a case for policy initiatives to assure and improve quality of provision.[21] This issue applies also to information and guidance services. Indeed, it must be ensured that they are independent of specific interest and efficiently serve their stated purpose.[22]

44. Last but not least, policy packages can increase individual benefits from training, by fostering the portability of skills and transparency in the signalling of learning outcomes, so that trained workers can better price themselves into jobs. Many countries have introduced standardised competence-based qualification systems, according to which acquisition of qualifications is not conditioned to course attendance in vocational training or educational institutions. Under these systems, workers are allowed to take individual skill tests independently of the way skills are acquired. Yet, much remains to be done to ensure the correct functioning of these mechanisms (OECD, 2003d, 2005).

*… as well as reduce opportunity costs …*

45. Meeting the training needs of employed individuals may frequently require them to stop working for a considerable period of time. In this case, the opportunity cost of training might be high (e.g. foregoing current earnings and productivity as well as career prospects with the current employer). But often adults do not need to go through the entire curricula of an education or training programme to acquire the skills they need. In the case of relatively specific training courses, free entry of training providers may ensure that services are tailored on the specificity of individual training needs, subject to the provisio on training quality discussed above. In the case of longer and more general curricula, however, recognition of prior learning for formative purposes — that is the recognition of other skills and experiences than formal qualifications, so that individuals can further develop their skills starting from the actual level they currently possess — can play a decisive role in reducing the length (and therefore the opportunity cost) of education and training. However, although there is large variation in the models of recognition of prior learning adopted in OECD countries, little information is available on the numbers of those who benefit from it, the extent to which credit is granted, the actual costs of these schemes, as well as their credibility among providers and, ultimately, their impact on the quality of studies (OECD, 2005).

*… and foster their division between employers and employees*

46. If the totality of opportunity costs has to be borne by the employee, constraints due to uncertain returns are likely to be frequently binding. In many OECD countries, there are various types of statutory or contractual training leave schemes that guarantee employees the right to return to their jobs after completing the training course as well as institutional arrangements facilitating access to training and education on a part-time basis (OECD, 2003a, 2005). These provisions help dampening the risk element of human capital investment borne by the worker (since they guarantee the employee to have a job at least as

good as his/her current one), and in practice imply sharing part of the opportunity costs with employers (who need to either replace the worker or forego his/her productivity on a temporary basis).

47. However, only few workers per year usually take a training leave, and most of them are second-earners, especially women (OECD 2003a, chapter 5). This can perhaps be explained by the fact that, as suggested by a recent OECD study (OECD, 2003e), *foregone income* is as important as time constraints to explain insufficient individual investments. To the extent that taking a training leave or moving to part-time work for study purposes imply giving up an important fraction of one's own salary, these institutional arrangements are unlikely to reach large labour force segments, particularly low-income/low-wealth people, without complementary arrangements addressing foregone income. Although government co-financing schemes can address this issue,[23] other institutional arrangements to foster cost-sharing among employers and employees (such as pay-back clauses, apprenticeships, company-based individual learning accounts, time-accounts) can attain the same objective without committing large public resources.[24]

## 8. Conclusions: several policy instruments to serve different objectives

48. Different training policies can serve different objectives. Institutional arrangements to foster cost-sharing can efficiently increase access to formal, accredited and well-recognised training with little burden for the public budget. Co-financing policies that increase the incentive for firms might reduce the possible impact of market failures on aggregate training provision and can be easily financed through specific corporate levies. However, these policies cannot reach those groups that are less likely to receive employer-sponsored training. In this case, co-financing policies targeted to individual demand might become necessary. However, these policies are expensive and might result in substantial waste of public resources if they are not accompanied by interventions to reduce imperfections in the training market.

49. Design is, however, crucial, and it is possible to identify some general principles concerning the desirable characteristics of training policies. Yet, too little is known on their relative efficiency with respect to other potential instruments, due to lack of rigorous evaluation analysis. Hence, taking also into account the methodological complexity of ex-post assessment in this area, evaluation mechanisms should be included into policy design to ensure timely corrections of policy mistakes.

## NOTES

1. With the available cross-country comparable data, it is difficult to say to what extent greater incidence of adult education and training translates into aggregate employment rates. Nevertheless, there is no evidence that trained workers thoroughly displace their non-trained peers. Furthermore, the cross-country correlation between employee training participation and employment rates is extremely high (more than 40% of the cross-country variation in employment rates can be explained by training participation rates alone) even controlling for the effect of initial education.

2. Major exceptions to this average pattern are represented by Australian and Swedish adults. In these two countries the share of individuals aged 35 years or more in the population of those attending formal education was 12% and 8%, respectively, in 1998 (OECD, 2002a).

3. Even when employers alone are reported to pay for training, they may not bear the full cost because workers may indirectly pay for these services through wage adjustments and accepting to be trained outside normal working hours. The empirical literature reviewed in OECD (2003a) shows, however, little evidence that workers accept lower wages to co-finance training, although there is some evidence that workers bear some of the opportunity cost of training by accepting to be trained outside normal working hours, but this is more the exception than the rule.

4. In theory, there are several market mechanisms that may induce employers to *de facto* internalise the benefits that will accrue to future employers. For instance, this will occur if training sufficiently reduces the employee's propensity to quit. However, this does not seem to occur in practice (Brunello and De Paola, 2004).

5. Other interpretations of the evidence — that do not involve market failures — have been put forward in the literature (see Agell and Lommerud, 1997, Moen and Rosen, 2002, and Leuven et al., 2004).

6. On the possibility of economy-wide displacement effects see, however, footnote 1.

7. Such as those imposed by family responsibilities for women.

8. The closer is the age of retirement and the smaller the available time to recoup training costs. However, the effect of the expected age of retirement might be greater in the case of workers' investment than in the case of firms'. In fact, the firm must amortise the latter within a relatively short period independently of workers' age, because its share of training benefits would be always lost upon separation, whatever the reason.

9. Furthermore, the effectiveness of these mechanisms strongly depends of national institutions that can be difficult to shape through policy intervention.

10. For example, US corporations such as Electronic Data Systems, General Dynamics, and Northrop require employees to repay relocation costs if they quit within a specified period of time, usually 1 year (Loewenstein and Spletzer, 1998).

11. Pay-back clauses might also be more viable if stipulated through collective agreements, since trade unions are in a better position to monitor training contents than individual workers. In the Netherlands, for example, many collective agreements establish pay-back clauses (Waterreus, 2002).

12. In Germany, the duration of apprenticeships is about 3 to 4 years, thereby leaving enough time to employers to recoup the costs of expensive training. By contrast, in Italy, apprentices are allowed to obtain their certification through the accumulation of multiple short-term contracts, thereby entailing a risk of inducing low quality cosmetic investment by firms.

13. One example is the mass entry of junk training providers subsequent to the introduction of the British nation-wide Individual Learning Account scheme, which had not occurred during previous local pilots.

14. It is often argued that another advantage of grants with respect to tax deductions is that funds can be collected in one year and disbursed in a different year. This might be a desirable feature because, during slack periods, the economic cost of foregoing production while training is lowest, but typically firms make no profits and cannot take advantage of tax deductions. This disadvantage of tax deductions is, however, only apparent. In fact, deductions of training expenditures can be postponed for several years, in a few countries, if taxable income is negative.

15. For instance, the Kok's report on strategies to create more employment in Europe states that "Market failures may be addressed through measures aimed at […] ensuring a minimum level of investment in continuing training by firms. Compulsory financial contributions by all firms, for example as a proportion of payroll, is one possible approach to costs sharing. […] Some member states require employers to spend

up to a certain threshold on training or pay a training levy" (Employment Task Force Chaired by Wim Kok, 2003, pp.55-56)

16. A more efficient policy package would be obtained, for example, by combining a levy of the same percentage of payroll, a partial — that is, less than 100% — tax deduction of training expenditures from this levy and an additional grant funded by the resources collected through the levy. This policy combination can be fine-tuned as to imply the same incentive effects for firms spending less than the legal minimum while yielding greater tax revenue to finance additional projects. Alternatively, another more efficient policy option that can be considered is the simple combination of corporate tax deductions financed through a specific levy up to the same percentage of payroll.

17. An additional argument in favour of matched contributions is that individuals are more likely to be effective in monitoring service quality when they have some own resources at stake. Conversely, monitoring incentives are weak when the subsidy is intended to cover essentially all costs up to a certain limit.

18. Such as the state or community-based Individual Development Accounts in the United States and the Learn$ave program in Canada.

19. Vouchers usually involve a lump payment that covers training fees up to a fixed ceiling (examples are training vouchers in Italy and the Geneva Canton of Switzerland; ISFOL, 2002, Conseil d'État de la République et Canton de Genève, 2000). Therefore, recipients who would have spent more than the maximum ceiling receive a windfall that does not modify their marginal costs. Conversely, those who spend less than the ceiling have no incentive to invest in training yielding high social returns. While the latter source of inefficiency can be easily dampened by avoiding that subsidies pay for the totality of training costs (for instance, in Upper Austria, vouchers cover only 50% of training costs, except for certain groups; OECD 2005), it is more difficult to act on the former to the extent that vouchers entail a ceiling on entitlements.

20. For example, in the case of the English Individual Learning Account initiative, there is evidence that some companies were abusing the system offering low value, poor quality learning. In the case of the levy scheme adopted in Australia in the 1990s for a relatively short period, many of the new providers that entered after the introduction of the scheme were of dubious quality (OECD, 2003a).

21. There are only few examples of such initiatives. Although, most of them are related to co-financing policies (such as accreditation of institutions in which vouchers can be spent; OECD 2003a, 2005), they define "quality seals" that help users recognising high-quality providers.

22. In Germany, as a tentative solution to this problem, there exists a system of accreditation of information and guidance providers (OECD, 2005).

23. The success of the Belgian and the Swedish schemes (with about 1% of the employees on training leave each year) can be attributed to the relatively high replacement rate guaranteed by co-financing schemes. However, while foregone wage and training costs are fully covered by a subsidy in Belgium (up to a ceiling), making the system extremely costly for the public budget, the Swedish scheme guarantees only a relatively small allowance, which can be complemented through income-contingent loans (OECD, 2003a, chapter 5).

24. The individual learning account scheme adopted by Skandia, a Swedish private insurance company, is particularly interesting in this respect. If employees save on a savings account, the company also pays contributions onto a parallel account. If that individual then makes use of his/her right to training leave (which in Sweden cannot be refused by the employer), the money accumulated on both accounts is used to finance continuous payment of wages. Employees can save up to 10% of annual salary per year with their contributions taken out of before tax income. The employer matches individual contributions on a 1:1 basis. In the case of employees aged 45 years or more who do not have an upper secondary qualification,

company contributions are increased to a 3:1 match up to 20% of annual salary per year. While employees retain the right to eventually choose their training, the high share of the investment borne by the company is motivated by the fact that the accounts work in practice as an incentive device, which minimises quits and enhances long-term specific investments from the employee. Furthermore, the company provides guidance on the choice of training programmes, thereby aligning individual demands on the company's needs. In the first two years that the Skandia project has been running, 40 per cent of employees have signed individual agreements of this type with the company (OECD 2003d, 2003e, ILO 2002).

## REFERENCES


AGELL, J. and LOMMERUD, K. (1997),"Minimum wages and the incentives for skill formation", *Journal of Public Economics*, Vol. 64, pp. 25-40.

BLINDER, A. and A. KRUEGER (1996), "Labor Turnover in the USA and Japan: A Tale of Two Countries", *Pacific Economic Review*, Vol. 1, pp. 27-57.

BRUNELLO, G. and DE PAOLA, M. (2004), "Market failures and the under-provision of training", *OECD Social, Employment and Migration Working Papers*, forthcoming.

CARMICHAEL, L. (1983), "Firm-Specific Human Capital and Promotion Ladders", *The Bell Journal of Economics*, Vol. 14, pp. 251-258.

CONSEIL D'ÉTAT DE LA RÉPUBLIQUE ET CANTON DE GENÈVE (2000), *Règlement d'application de la loi sur la formation continue*, Genève, http://www.geneve.ch/legislation/rsg/f/s/rsg_C2_08p01.html

EMPLOYMENT TASKFORCE CHAIRED BY WIM KOK (2003), *Jobs, Jobs, Jobs: Creating More Employment in Europe*, European Communities, Luxembourg.

HALL, P. and SOSKICE, D. (2001), *Varieties of Capitalism*, Oxford University Press, Oxford.

ILO (2002), *Learning and Training for Work in the Knowledge Society*, Genève.

ISFOL (2002), *La Formazione Continua in Italia, Rapporto 2002*, Rome.

LAZEAR, E.P. (2003), "Firm-Specific Human Capital: A Skill-Weights Approach", *NBER Working Paper*, No. 9679, May.

LEUVEN, E. and OOSTERBEEK, H. (2004), "Evaluating the Effect of Tax Deductions on Training", *Journal of Labor Economics*.

LEUVEN, E., OOSTERBEEK, H., SLOOF, R., and VAN KLAVEREN, C. (2004), "Worker Reciprocity and Employer Investment in Training", *Economica*.

LOEWENSTEIN, M. A. and SPLETZER, J. R (1998), "Dividing the Costs and Returns to General Training", *Journal of Labor Economics*, Vol. 16, No 1, pp. 142-171.

MOEN, E. and A. ROSEN (2002), "Does Poaching Distort Training?", *CEPR Discussion Paper*, No. 3468, July.

NEUMARK, D. and WASCHER, W. (2001), "Minimum Wages and Training Revisited", *Journal of Labor Economics*, Vol. 19, No. 3, pp. 563-595.

NICOLETTI, G., S. GOLUB., D. HAJKOVA, D. MIRZA, and K.Y. YOO (2003), "The Influences of Policies on Trade and Foreign Direct Investment", *OECD Economic Studies*, No. 36, pp. 7-84.

OECD (2002*a*) *Education Policy Analysis*, Paris.

OECD (2002*b*) *Employment Outlook*, Paris.

OECD (2003*a*), *Employment Outlook*, Paris.

OECD (2003*b*), *The Sources of Economic Growth in OECD Countries*, Paris.

OECD (2003*c*), *Descriptions and evaluations of recent experience with mechanisms for co-financing lifelong learning: Reports prepared by national authorities and members of the ELAP network,* prepared for the "Second International Seminar: Mechanisms for the Co-finance of Lifelong Learning", London, 27-29 November, OECD, Paris.

OECD (2003*d*), *Beyond the Rhetoric: Adult Learning Policies and Practices*, Paris.

OECD (2003*e*), *Education Policy Analysis*, Paris.

OECD (2004), *Employment Outlook*, Paris.

OECD (2005), *Thematic Review of Adult Learning: Final Report*, Paris.

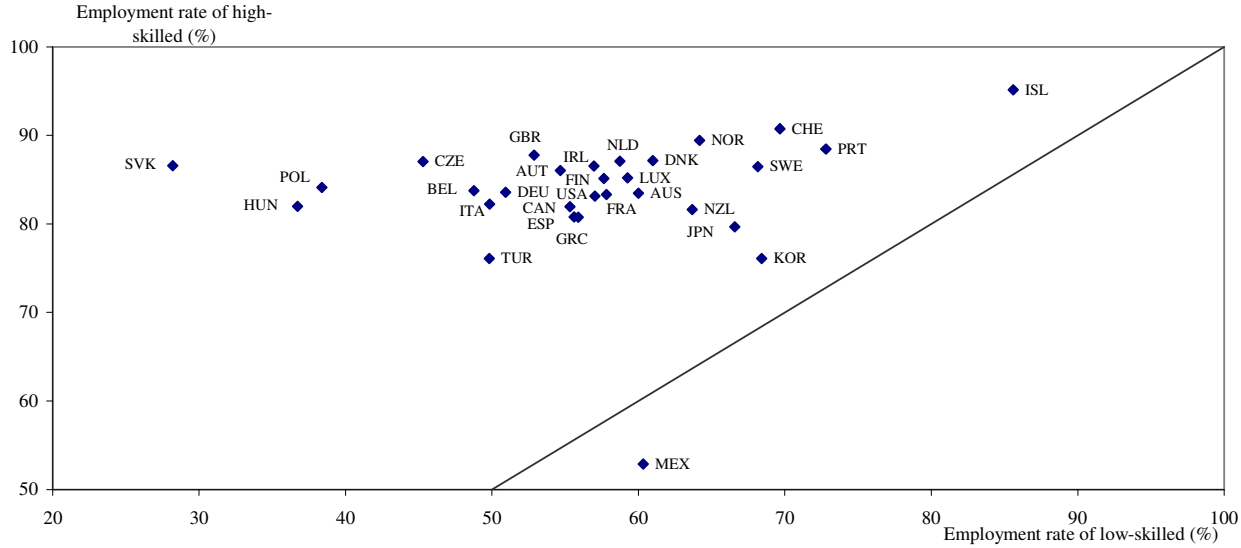
STEVENS, M. (1999), "Human Capital Theory and UK Vocational Training Policy", *Oxford Review of Economic Policy*, Vol. 15, No. 1, pp. 16-32.

WAKITA, S. (1998), A Model for Patterns of Industrial Relations, in Ohashi I. e Tachibanaki T. (eds), *Internal Labour Markets, Incentives and Employment*, MacMillan Press, London.

WATERREUS, J.M. (2002), *O&O-fondsen op herhaling ; Stand van zaken scholingsfondsen 2002*, Max Goote, Amsterdam.

Chart 1. **Employment rates by educational attainment** [a] **, 2002**

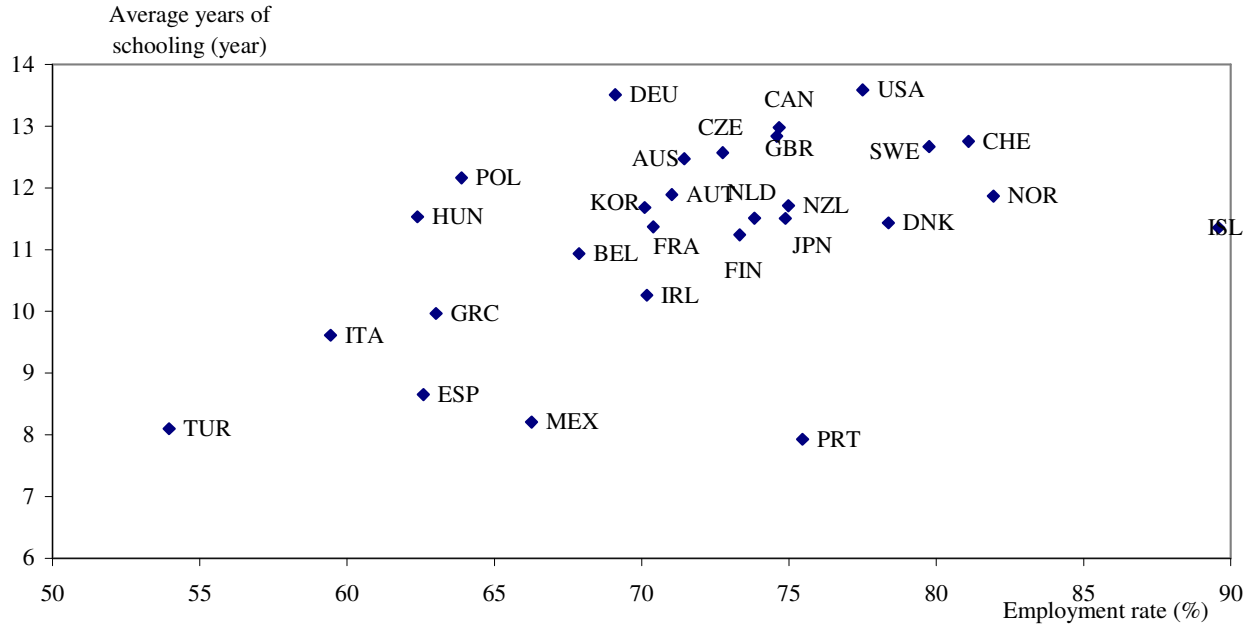
Persons aged 25-64




*a)* Low-skilled correspond to Less than upper secondary education (ISCED 0/1/2). High-skilled correspond to Tertiary education (ISCED 5/6/7).

Chart 2. **Employment rates and average years of schooling, 2000** [a]

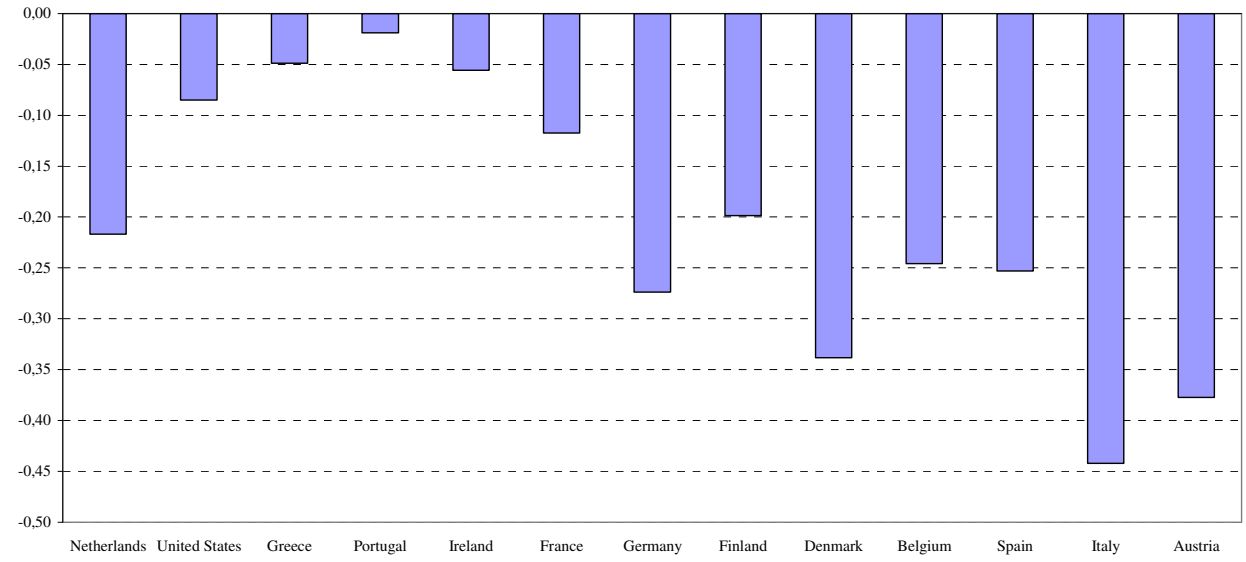
Persons aged 25-64



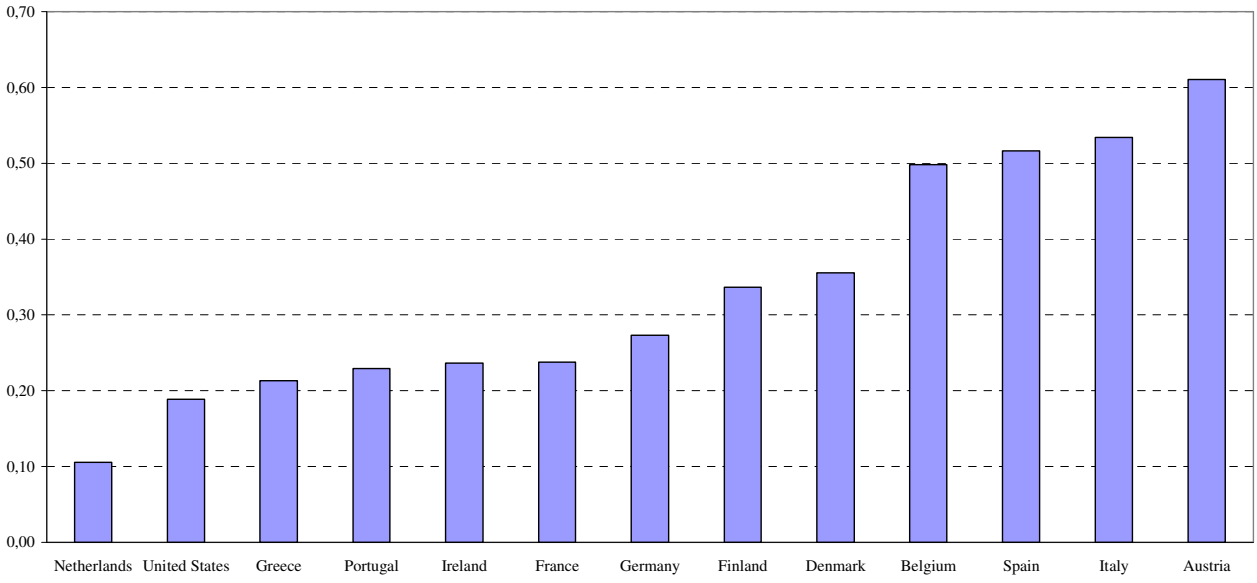

*a)* 1998 for Canada, Denmark, Finland, Germany, Greece, Ireland, Japan, New Zealand, Norway, Portugal and Spain; 1999 for Austria and the Netherlands.
*Source: Nicoletti et al. (2003)*

Chart 3. **Training increases the probability of being active and reduces the risk of unemployment**

Panel A. Estimated change in the probability of being unemployed as a result of training or education, prime-age workers [a]




Panel B. Estimated change in the probability of participating in the labour market as a result of training or education, prime-age workers [a]

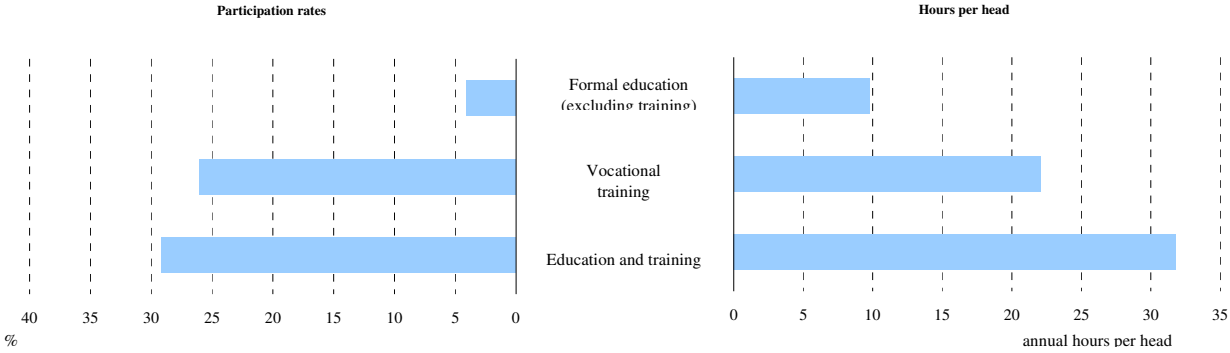



*a)* Percentage-point impact of a 10% increase in the number of years in which an average individual receives some education or training. Data refer to individuals aged 25-44 years.

*Source:* Update of Secretariat calculations made for OECD (2004) on the basis of the European Community Household Panel, waves 1 to 7 (1994-2000) for the European countries and on the National Longitudinal Survey of Youths 1979 for the United States (1992-1998).

Chart 4. **Formal education accounts only for a small part of adult learning**

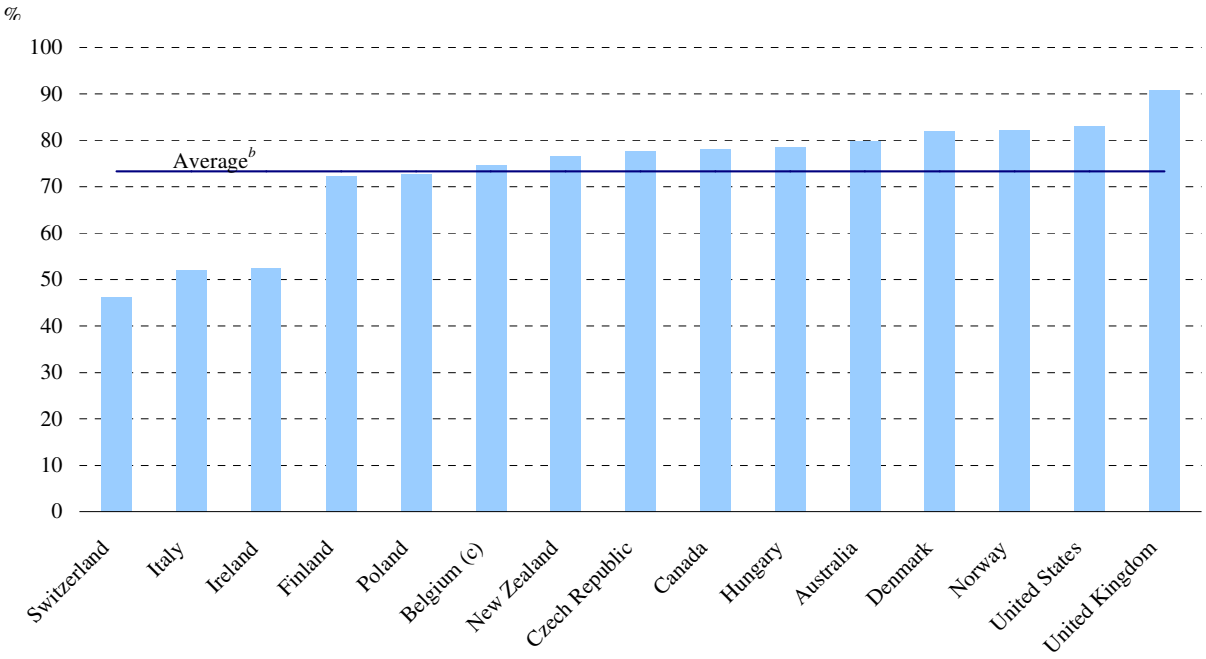
Annual participation rates in and hours per head[a] of job or career-related training courses, weighted average of available countries, 1994-1998[b]




*a)* Persons aged 26-65, excluding those in full-time education or retired.
*b)* Weighted average of Australia, Belgium (Flanders only), Canada, Czech Republic, Denmark, Finland, Hungary, Ireland, Italy, the Netherlands, New Zealand, Norway, Poland, Switzerland, the United Kingdom, and the United States.
*Source:* IALS.

## Chart 5. **Most training is entirely paid by employers**

Percentage of vocational training courses entirely paid by employers[a]

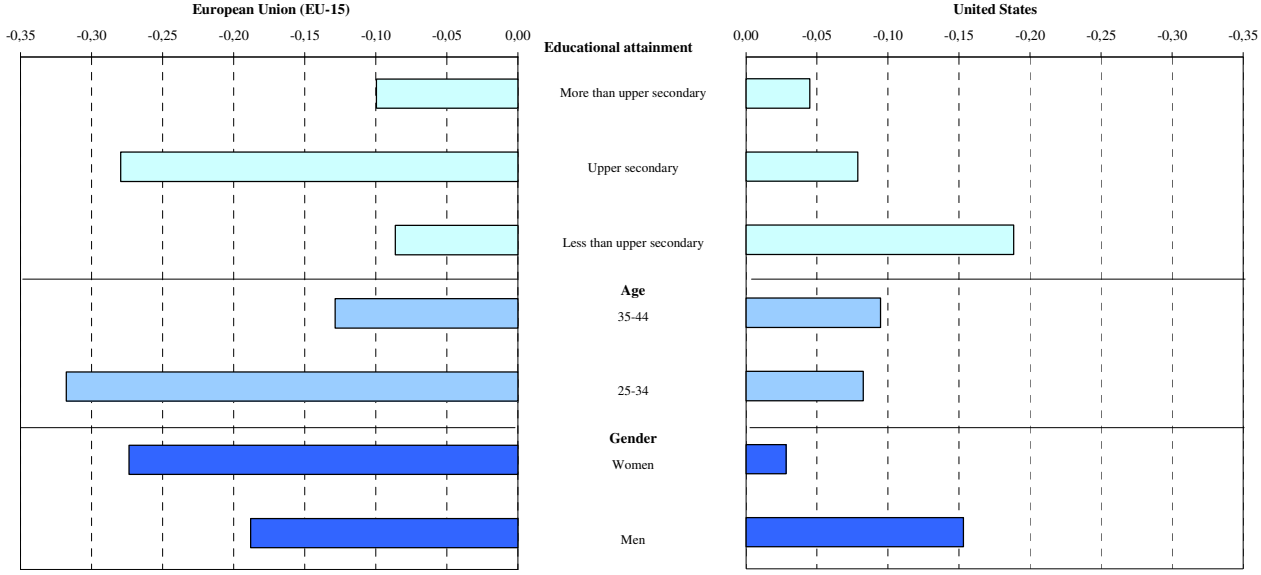



*a)* Data refer to vocational training (both employer-sponsored and non-employer-sponsored) received by employed persons aged 26 to 65 years and to 1994 for Canada, Ireland, Poland, Switzerland (German and French-speaking regions) and the United States, to 1996 for Australia, Belgium (Flanders only), New Zealand and the United Kingdom, and to 1998 for the Czech Republic, Denmark, Finland, Hungary, Italy, Norway and the Italian-speaking regions of Switzerland. Countries are ranked from left to right in ascending order.

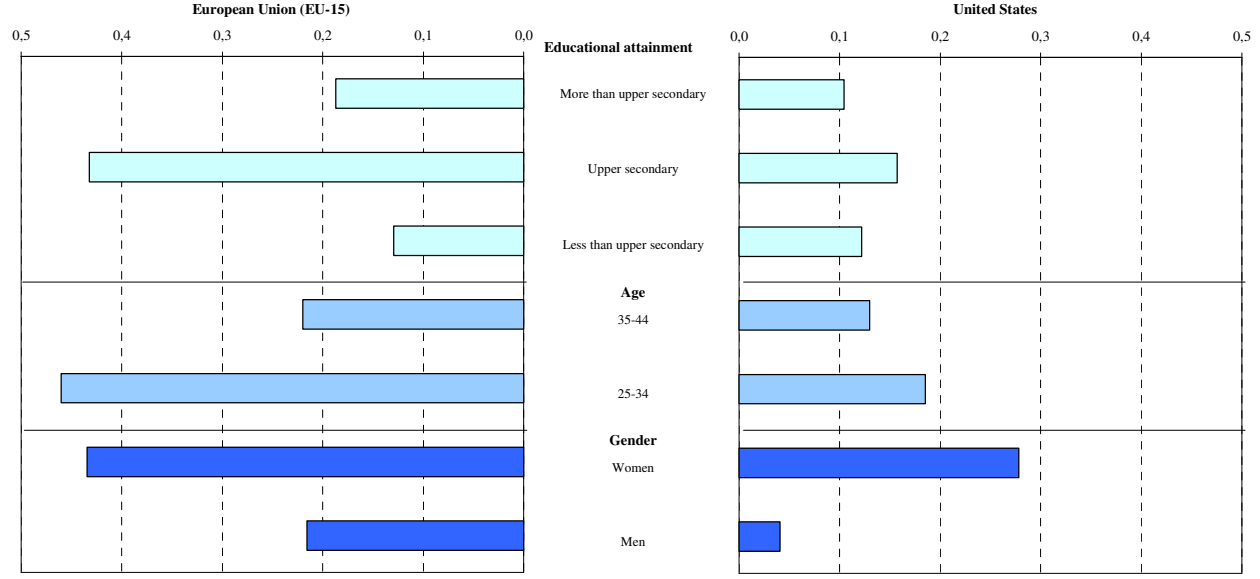
*b)* Unweighted average of countries shown.
*c)* Flanders only.
*Source:* OECD (2003a).

Chart 6. **Training has a positive effect on different labour market groups**

Panel A. Estimated change in the probability of being unemployed as a result of training or education, by labour market group [a]




Panel B. Estimated change in the probability of participating in the labour market as a result of training or education, by labour market group [a]

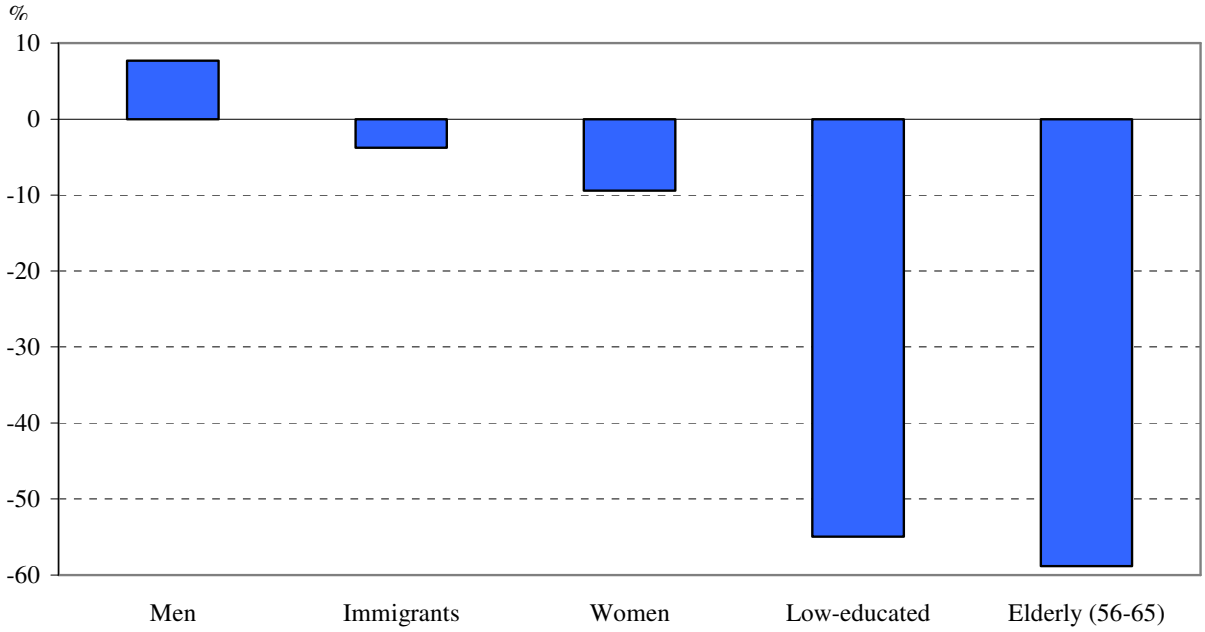



*a)* Percentage-point impact of a 10% increase in the number of years in which an average individual receives some education or training. Data refer to individuals aged 25-44 years.

*Source:* Update of Secretariat calculations made for OECD (2004) on the basis of the European Community Household Panel, waves 1 to 7 (1994-2000) for the European countries and on the National Longitudinal Survey of Youth for the United States (1992-1998).

Chart 7. **Training inequalities are significant**

Average hours of education and training for selected groups as a percentage of the average for all groups [a b]




*a)* Persons aged 26 to 65, excluding those in full-time education or retired.

*b)* Weighted average of Australia, Belgium (Flanders only), Canada, Czech Republic, Denmark, Finland, Hungary, Ireland, Italy, the Netherlands, New Zealand, Norway, Poland, Switzerland, the United Kingdom, and the United States.

*Source: IALS*.